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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,594	03/25/2004	Van Hoa Lee	AUS920040058US1	7104

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EXAMINER

GU, SHAWN X

ART UNIT	PAPER NUMBER
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2189

DATE MAILED: 06/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/809,594	Applicant(s) LEE, VAN HOA	
	Examiner Shawn Gu	Art Unit 2189	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-12, 14-21 and 23-27 is/are rejected.
- 7) ☒ Claim(s) 4, 13 and 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 9, 18 and 27 are objected to because of the following informalities:

Per claims 9, 18 and 27, the acronym "TCE" should be spelled out as "Translation Control Entry" as the acronym is first mentioned in these claims.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Per claim 5, the limitation "the page system memory" lacks sufficient antecedent basis. The Examiner is unable to determine which page this limitation is referring to.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 19-27 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claimed invention is a computer program product, which by itself is non-statutory subject matter. Furthermore, the computer-readable medium that stores the computer program product is not a tangible subject matter as disclosed by the specification (see Page 17, second paragraph), which states that some of the embodiments of the medium are transmission-type media, such as wired or wireless communication links. In order for the claimed invention in claims 19-27 of the instant application to be statutory, it must be a tangible computer readable medium such as a hard disk drive or RAM.

All dependent claims are rejected as having the same deficiencies as the claims they depend from. Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-3, 5, 6, 8, 10-12, 14, 15, 17, 19-21, 23, 24 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Dawkins et al. [US 2002/0124194 A1] (hereinafter "Dawkins").

Per claims 1, 10 and 19, Dawkins teaches a method in a data processing system for providing valid translation entries in a translation control entry table (TCE facility and TCE Table, see Pg. 4, Para. [0043], [0044], [0046]) for all supported direct memory addresses, comprising:

reserving a page in system memory ("a reserved page per image ... ", see Pg. 4, Para. [0046]);

writing the reserved page (a page of memory is written to when a write operation from the operating systems addresses a memory range within the page);

selecting a region in system memory for the translation control entry table (the TCE table must be stored somewhere in system memory for the Hypervisor and the operating systems to access it, see Pg. 4, Para. [0046]); and

initializing all entries in the translation control entry table, wherein all entries are initialized to be valid and contain the address of the reserved page ("initializes all entries in ... TCE table to point to a reserved page ... ", see Pg. 4, Para. [0044] and [0046]).

It is also clear the data processing system of claim 10 is already substantially disclosed above, as well as the computer program product ("software", see Pg. 5, Para. [0050] and [0051]; "computer instructions", see Pg. 6, Para. [0066], [0068] and [0076]) of claim 19.

Per claims 2, 11 and 20, Dawkins further teaches updating an entry in the translation control entry table, wherein a physical memory page replaces the reserved page when the entry is used by an operating system's device driver (TCE mapping with I/O adapter DMA range, see Pg. 4, Para. [0047] and [0048]).

Per claims 3, 12 and 21, Dawkins further teaches restoring the entry in the translation control entry table with the reserved page when the entry is no longer used by an operating system (reserving the page is done during platform initialization, at which point the previous mapping by an operating system must be replaced by the page reservation, see Pg. 4, Para. [0046]).

Per claims 5, 14 and 23, Dawkins further teaches the page system memory and the reserved page are inaccessible to an operating system running on the data processing system (the reserved page is owned by an OS image, not by "one of the other OS images", see Pg. 4, Para. [0046]).

Per claims 6, 15 and 24, Dawkins further teaches writing the reserved page includes setting all bytes within the reserved page to 0xFF (reserving a page implies initializing the page, therefore the byte values within the reserved page are arbitrarily set to known values. Setting all bytes to 0xFF is merely a design choice).

Per claims 8, 17 and 26, Dawkins further teaches the reserved page is a 4KB page ("4 Kbytes per page", see Pg. 4, Para. [0043]).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 7, 16 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dawkins et al. [US 2002/0124194 A1] (hereinafter "Dawkins"), in further view of Tanenbaum et al. [Operating Systems: Design and Implementation] (hereinafter "Tanenbaum").

Per claims 7, 16 and 25, Dawkins does not specifically teach setting all valid bits to "1". However, Tanenbaum teaches an address translation mechanism (TLB, see Tanenbaum, Pg. 328, Fig. 4-12) that sets valid bits of its table entries to "1" to indicate the entries are valid (in use, see Pg. 328, Ln. 20-21). Since Dawkins initializes its TCE table entries to contain the address of the reserved page as described in claim 1, the entries are in use and therefore valid. Hence, it would have been obvious to one ordinarily skilled in the art at the time of the Applicant's invention to associate valid bits to the table entries and set the bits to "1" to indicate that the entries are valid (in use).

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10. Claims 9, 18 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dawkins.

Per claims 9, 18 and 27, Dawkins does not specifically teach the size of the TCE table, the number of table entries, or the size of the table entries. However, it would have been obvious to one ordinarily skilled in the art at the time of the Applicant's invention that these specific values are dictated by design choices and system parameters such as the size of system memory, page size, addressing format and performance costs.

Allowable Subject Matter

11. Claims 4, 13 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

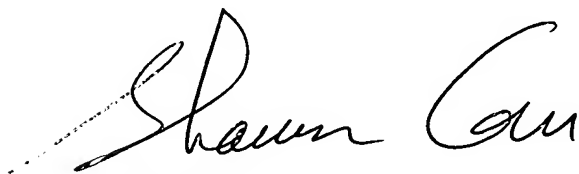
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shawn Gu whose telephone number is (571) 272-0703.

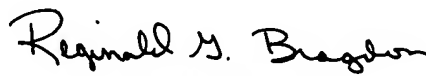
The examiner can normally be reached on 9am-5pm, Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Reginald Bragdon can be reached on (571) 272-4204. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Shawn X Gu
Patent Examiner
Art Unit 2189


REGINALD G. BRAGDON
PATENT EXAMINER

30 May 2006